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Center for Advanced Infrastructure & Transportation
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QUARTERLY PROGRESS REPORT

Project Title:	New Jersey Local Congestion, Safety, Security Initiative
RFP NUMBER:	NJDOT/FHWA RESEARCH PROJECT MANAGER(S): Nazhat Aboobaker/William Hoffman
TASK ORDER NUMBER/Study Number: Task Order No. 132 / 4-26993	PRINCIPAL INVESTIGATOR: Ali Maher/Joe Orth
Study Start Date: 12/11/2002 Study End Date: 12/11/2004	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1.1 Literature Search	15	14	66	80
1.2 Present NJDOT/FHWA	5	.5	.5	10
2.1 Survey Customers	30	15	15	50
3.1 Crash Data Training	6.25	20	40	2.5
3.2 Identify/Provide Tools	6.25	10	20	2.5
3.3 Provide Emergency Response Training	6.25	0	0	0
3.4 Promote Congestion Mitigation	6.25	15	15	.9
3.5 Introduce Congestion Best Practices	6.25	6.25	6.25	100
3.6 Explore Mass Transit Alternatives	6.25	5	10	.6
3.7 Facilitate Safety and Security	6.25	5	5	.3
3.8 Personnel Safety Training	6.25	0	0	0
TOTAL	100			

1. Progress this quarter by task:

A. The Security Literature Review was completed and distributed to NJDOT & FHWA for approval.

a. On 6/27/03, the FHWA Office of Security Operations opened a security website for local transportation agencies. This site provides several resources for county and municipal agencies that are involved with creating their own security plans. Also, the national Safety Conscious Planning Model has been expanded to include a section on security planning, as well as safety planning.
b. Mr. Art Egan, NJDOT, is now responsible for completing security planning for the counties of New Jersey, while Rod Roberson, former Assistant Commissioner, has be assigned to prepare a consolidated plan for NJDOT that includes the Parkway and the Turnpike.
c. The Safety Component of the Literature Review has been critiqued by both Dr. Aboobaker and William Beans of NJDOT. The Crash Records Division will be using portions of the review for further work at their agency.
d. After receipt of the feedback on the Security component, the paper will be compiled and presented during the NJDOT Showcase in October 2003.

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QUARTERLY PROGRESS REPORT

Project Title:	Evaluation of Adaptive Control Strategies for NJ Highways
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Karl Brodtman
TASK ORDER NUMBER/Study Number: 101 / 4-26682	PRINCIPAL INVESTIGATOR: Kaan Ozbay
Study Start Date: 01/01/2001 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Task 1: Literature Survey	10%	30%	100%	10%
Task 2: Inventory Assessment	25%	20%	100%	25%
Task 3: Site Selection	5%	0%	100%	5%
Task 4: DSS Development	35%	7%	90%	31.5%
Task 5: Gap Analysis	5%	80%	100%	5%
Task 6: Implementation Strategies	5%			
Task 7: Training	5%			
Progress Reports				
Final Report	10%	40%	40%	4%
TOTAL	100%			80.5%

1. The percentages were adjusted to reflect the work needed for each task.

1. Progress this quarter by task:
Task1: This task is complete.
Tasks 2 and 3: We completed these tasks for the sites given to us by NJDOT. .
Task 4:
We continue to spend considerable amount of time on this task due the following major developments:

- None of the adaptive control strategies tested in this project namely, SCOOT, SCATS, and OPAC, could be obtained form the developers of the FHWA. This was not anticipated when we started the project but in time it became apparent that these adaptive traffic control programs were not available. The communication details with the developers can be made available if needed.
- This lack of cooperation from the developers created unexpected delays and we are still working on the calibration and design of these algorithms so that they can be tested for the intersections given to us by NJDOT.
- We continued to run tests using the networks we coded to obtain the following information:
  - Impact of traffic conditions on the performance of adaptive control strategies
  - The accuracy of traffic simulation in terms of capturing real-world conditions
  - The accuracy of widely accepted delay equations in terms of capturing intersection performance which are use to evaluate adaptive signal strategies
- The rule based is being modified to take into account uncertainties.
- Continue the work on implementing SCATS, SCOOT, and OPAC for different types of geometries and traffic conditions.

Task 5: We documented the data needed to create the three arterial networks and the gaps that exist in terms of data.

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Final Report: Parts of the final report that deal with the first 3 tasks and portion of task 4 was put together as a draft report.

2. Proposed activities for next quarter by task
Task 6: We will continue working on developing guidelines for implementation strategies. The prototype expert system program will be programmed based on the developed rule base.

3. List of deliverables provided in this quarter by task (product date)

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions

- We might need additional time to finalize the rule base and complete the final report based on the final results of Task 6 due to the reasons below:
  - It is becoming clear that the adaptive signal strategies such as SCOOT and SCATS are not readily available for us to implement in Paramics. This considerably slows don our progress since we have to build algorithms similar to these and then program them.
  - Also, it is clear that we need to use CORSIM for RT-TRACS algorithms since they are only available for CORSIM. This was a totally new step for our research.
  - We have also introduced hardware-in-the-loop concept. But due to the impossibility of getting run time extensions for CORSIM we could not obtain positive results in this approach.
  - One new problem is the fact that we have to use different simulation packages for different types of evaluations. Thus, we are now trying to compare the results obtained form different software packages to ensure that that the final results are compatible.
  - There is a considerable delay between the official starting date of the project and the actual starting date, date when the account is set-up and students can be hired. This time lag also affects the availability of students. Now we have all the student we need, however, the time lag can cause some delay at the end of the project.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$318,458.00
Total Project Expenditure to date		$310,208
% of Total Project Budget Expended		97%
Task Order Number/Study Number:		101 / 4-26682
Current Task Order Budget (# of years)	Year 1 and 2	$318,458.00
Actual Expenditure to date against current task order		$310,208
% of current task order budget expended		97%

* These are approximate expended amounts for the project; these estimates are for reference only and should not be used for official accounting purposes. For a more accurate project accounting please review the quarterly invoice for this project.

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QUARTERLY PROGRESS REPORT

Project Title:	Development and Evaluation of Geotechnical Design Parameters Using the Seismic Piezocone
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: 88-04 / 4-23932	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 06/01/2000 Study End Date: 9/30/2001	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	10%	0%	100%	10%
1. Field Testing	40%	0%	100%	40%
2. Laboratory Testing	20%	0%	100%	20%
3. Calibration	10%	0%	100%	10%
4. Reporting	20%	0%	100%	20%
Final Report				
TOTAL	100%			100%

1. Progress this quarter by task:

   The final report was generated, based on the recommendations by NJDOT project managers, and a final version will be submitted to the NJDOT at the quarterly meeting. If accepted, the document will be reproduced and submitted.

2. Proposed activities for next quarter by task:

   A. Completed

3. List of deliverables provided in this quarter by task (product date)

   N.A.

4. Progress on Implementation and Training Activities

   N.A.

5. Problems/Proposed Solutions

   N.A.

6. Budget Summary*

Total Project Budget(# of years)	1 Year	$30,000.00
Total Project Expenditure to date		$29,965
% of Total Project Budget Expended		100%
Task Order Number/Study Number:		88-04 / 4-23932
Current Task Order Budget (# of years)	Year 1	$30,000.00
Actual Expenditure to date against current task order		$29,965
% of current task order budget expended		100%

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QUARTERLY PROGRESS REPORT

Project Title:	The Future of Transportation Modeling
RFP NUMBER: NJDOT 2001-19	NJDOT RESEARCH PROJECT MANAGER: Karl Brodtman
TASK ORDER NUMBER/Study Number: 117 / 4-26856	PRINCIPAL INVESTIGATOR: Maria Boilé
Study Start Date: 01/01/2002 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Task 1 Detailed model comparison and development of a summary matrix	25%	0%	100%	25%
Task 2 Conduct a survey to determine the potential future transportation models	25%	10%	60%	15%
Task 3 Develop a plan to be followed by the Bureau of Technical Analysis if they wish to switch from their current models to others identified as future standards	20%	5%	15%	3%
Task 4 Implementation and Training	15%	0%	20%	3%
Task 5 Quarterly and final reports	15%	5%	55%	8.25%
TOTAL	100%			54.25%

1. Progress this quarter by task:
The progress of the work during the last quarter has been delayed due to delays in receiving feedback on documents that had been sent for review to the advisory board members and NJDOT. The survey questionnaire has been finalized and is ready to be mailed out. An interactive tool is being developed which will allow comparison of the features of any two selected software packages.

2. Proposed activities for next quarter by task
Survey results will be collected and summarized. The plan to be followed by the Bureau of Technical Analysis will be updated based on the survey results.

3. List of deliverables provided in this quarter by task
N/A

4. Progress on Implementation and Training Activities
N/A

5. Problems/Proposed Solutions
N/A

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6. Budget Summary*

Total Project Budget(# of years)	2 Years	$ 125,124.00
Total Project Expenditure to date		$96,483
% of Total Project Budget Expended		77%
Task Order Number/Study Number:		117 / 4-26856
Current Task Order Budget (# of years)	Year 1 and 2	$ 125,124.00
Actual Expenditure to date against current task order		$96,483
% of current task order budget expended		77%

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QUARTERLY PROGRESS REPORT

Project Title:	New Jersey Interagency Emergency Management Plan
RFP NUMBER:	NJDOT/FHWA RESEARCH PROJECT MANAGER(S): Art Egan
TASK ORDER NUMBER/Study Number: Task Order No. 133 / 4-26900	PRINCIPAL INVESTIGATOR: Ali Maher/Joe Orth/Rod Roberson
Study Start Date: 3/18/2003 Study End Date: 3/18/2005	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search				
1.00 Identify NJDOT rep			100	
1.01 Meet with Agencies			100	
1.02 Meet Individual Agencies			40	
1.1 Identify Current State of Practice			0	
1.2 Make Presentation to NJDOT			0	
LTAP Plan Concept			0	
2.0 Develop Recommendations			0	
2.1 Options to accomplish Objectives			0	
2.2 LTAP present findings			0	
2.3 Develop Tasks			0	
2.4 Present Plan			0	
TOTAL	100			

1. Progress this quarter by task:

a. Met with NJDOT Commissioner Jack Lettiere and representatives from the NJ Turnpike, AC Expressway, GS Parkway and NJDOT Officials.

b. Held two follow up meetings with representatives of each agency at their respective agencies and project manager Roberson received requested documents.

c. Review of the documents submitted by each agency is being performed and follow up questions respective to each agencies programs are under development, based on the documents presented.

2. Proposed activities for next quarter by task

a) Continue Literature Search
b) Meetings are being scheduled with each agency to review the findings of the document submissions and resolution of questions. It is intended that the meetings will be scheduled and completed on or before September 30, 2003.

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3. List of deliverables provided in this quarter by task (product date)
Identify key agency contacts

4. Progress on Implementation and Training Activities
Not at implementation.

5. Problems/Proposed Solutions

None at this time.

6. Budget Summary*

Total Project Budget (# of years)	1 and 2 Year	$139,150.00
Total Project Expenditure to date		$0
% of Total Project Budget Expended		0%
Task Order Number/Study Number:		133 / 4-26900
Current Task Order Budget (# of years)	Year 1 and 2	$139,150.00
Actual Expenditure to date against current task order		$0
% of current task order budget expended		0%

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QUARTERLY PROGRESS REPORT

Project Title:	Monitoring of Construction Doremus Avenue Bridge Structure
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Nick Vitillo
TASK ORDER NUMBER/Study Number: 99 / 4-26676	PRINCIPAL INVESTIGATOR: Hani Nassif
Study Start Date: 01/01/2001 Study End Date: 12/31/2004	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search and Field Coordination	5%	0%	100%	5%
Finite Element Model Development and verification (Substructure & Superstructure)	10%	20%	90%	9%
Develop Instrumentation Plan and Install Sensors	20%	5%	100%	20%
Parametric Study	20%	10%	90%	18%
Perform Monitoring and Data Collection	25%	10%	90%	22.5%
Prepare Recommendations to Modify AASHTO and NJDOT's Procedures	5%	10%	10%	0.5%
Comparison of Analytical and Experimental Results	5%	10%	70%	3.5%
Progress Reports	5%	5%	95%	4.75%
Final Report	5%	10%	10%	0.5%
TOTAL	100%			83.75%

1. Progress this quarter by task
   A. Latex Modified Concrete Layer:
      1. Testing and installation of sensors in the Latex Modified Concrete (LMC) layer to measure temperature and static and dynamic strain is being performed. Work on Stage II LMC corrective work has been concluded on Friday 8/29/03.
      2. Various LMC specimen have been sampled to test for strength, restrained shrinkage, unrestrained shrinkage, rapid chloride permeability, freeze and thaw, etc. Results are reported at various ages. Specimens are field cured under the same conditions as those of the bridge deck.
      3. Truck calibration tests as well as live loading tests of bridge deck performance are planned for Sept. 18-19, 2003.
      4. It is expected that Stage I LMC work will begin after traffic is open on Stage II after Sept. 19th, 2003.

   B. WIM System
      1. The pending plate WIM system is not yet operational which will cause delays in traffic opening of stage II. The Electric Subcontractor has not done much since our last meeting on July 18th, 2003.
      2. The Rutgers equipment and sensors in Stage II are triggered by the WIM pending plate system and it needs to be completely functional and calibrated prior to traffic opening of stage II.

   C. Fatigue System
      1. Fatigue data is being processed. Few of the sensors have high noise to signal ratio. The Rutgers team is studying various methods of reducing noise in the data.

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2. The fatigue system will need to be collected to the WIM system to distinguish load cycles and truck weight spectra.

2. Proposed activities for next quarter by task
   1. Testing Stage II after LMC layer is poured.
   2. Calibration and testing of WIM system and connection to equipment and sensors.
   3. Stage I LMC sensor installation and monitoring.
   4. Stage I LMC specimen sampling and testing.
   5. Stage II static and dynamic testing.
   6. Installation of UIC Fiber Optic Sensors and other Rutgers' sensor in approach slabs located at Stage I South Abutment.
   7. Testing and monitoring of Approach Slabs in South Abutment.

3. List of deliverables provided in this quarter by task (product date)

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions

6. Budget Summary*

Total Project Budget (# of years)	4 Years	$581,825
Total Project Expenditure to date		$443,726
% of Total Project Budget Expended		76%
Task Order Number/Study Number:		99 / 4-26676
Current Task Order Budget (# of years)	Year 1, 2, 3, and 4	$581,825
Actual Expenditure to date against current task order		$443,726
% of current task order budget expended		76%

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QUARTERLY PROGRESS REPORT

Project Title:	Investigation into Modified Asphalt Binders for Improved Pavement Performance
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 80 / 4-23908	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 02/01/2000 Study End Date: 01/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	10%	0%	100%	10%
1. Material Collection	5%	0%	100%	5%
2. Laboratory Testing	50%	0%	100%	50%
3. Calibration	15%	0%	100%	15%
4. Reporting	20%	5%	100%	20%
Final Report				
TOTAL	100%			100%

1. Progress this quarter by task:
   A. A final report was generated and will be submitted to the NJDOT for review. Some of the final conclusion of the study are as follows:
   1. Both simulative-type and fundamental type testing are needed to characterize modified asphalt binders when using a direct add-in type of material. The direct add-in asphalt modifier is defined as a modifier that can be added directly to a pre-determined asphalt mix. The fundamental type testing, such as the Simple Shear and Frequency Sweep, correlated well to the binder testing and thus can be used to provide an analysis of the added performance of an asphalt modifier. However, the simulative testing, such as the Asphalt Pavement Analyzer and the Repeated Shear, are heavily influenced by the overall hot mix itself. Therefore, if the asphalt modifier in question does not allow for itself to be utilized as an add-in material, like the Carbon Black was in this study, this type of testing will indicated such.
   2. The Long Term Oven Aging (LTOA) procedures used to simulate field aging of samples may increase the potential of the HMA to develop micro-cracking in the mastic. The micro-cracking can be explained by evaluating the data and comparing the induced strains per test. The Frequency Sweep, which applies the lowest amount of sample strain, was affected the greatest. It appears that the closure of the micro-cracking was incorporated in the applied strain, therefore reducing the overall applied stress. If the applied stress is reduced, while applying the same strain, the material has the perception of losing stiffness when compared un-aged samples. This was very evident in the higher test temperatures of the Frequency Sweep test. However, both the Simple Shear and the Repeated Shear did not exhibit this reduction in stiffness at higher test temperatures. This was either due to the larger strains associated with the tests, or that the tests are conducted in a stress-controlled environment, not a strain controlled like the Frequency Sweep.
   3. Two different test procedures were developed to evaluate and rank asphalt binder modifiers. These procedures were based on the statistical analysis of 14 different tests/test parameters. Two procedures were developed to allow the user to conduct either a quick evaluation (only recommended if NJDOT has previous working history with the additive) or a more comprehensive procedure that incorporates an aging analysis. These two procedures utilize both simulative and fundamental type test methods.

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2. Proposed activities for next quarter by task:
   A. Once the report is reviewed by the NJDOT, the proper corrections will be made and again returned to the NJDOT for final comments.

3. List of deliverables provided in this quarter by task (product date)
   N.A.

4. Progress on Implementation and Training Activities
   N.A.

5. Problems/Proposed Solutions
   N.A.

6. Budget Summary*

Total Project Budget(# of years)	3 Years	$213,544.00
Total Project Expenditure to date		$212,765
% of Total Project Budget Expended		100%
Task Order Number/Study Number:		80 / 4-23908
Current Task Order Budget (# of years)	Years 1, 2, and 3	$213,544.00
Actual Expenditure to date against current task order		$212,765
% of current task order budget expended		100%

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QUARTERLY PROGRESS REPORT

Project Title:	Instrumentation and Monitoring of Bridge Approach Slabs – Phase II
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Robert Sauber and Nick Vittilo
TASK ORDER NUMBER/Study Number: 99 / 4-26676	PRINCIPAL INVESTIGATOR: Hani Nassif
Period Starting: 9/1/2002 - 9/31/2004 (Start-End Date of Study)	Period Ending: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Instrumentation Plan and Field testing	30%	10%	70%	21%
Calibration of Sensors and DAS	20%	10%	30%	6%
Data Collection and LTRM	20%	20%	40%	8%
FEM Verification	10%	2%	8%	8%
Progress Reports & Technical Memorandum	15%	10%	50%	7.5%
Final Report	5%	0%	0%	0%
TOTAL	100%			50.5%

1. Progress this quarter by task:
   - Download field data using data logger.
   - Continued to visually monitor slabs for cracking.
   - Developed a 3-D soil-Slab interaction FE model and compared results with 2-D model and test results.
   - Prepared sensors for installation in Approach Slabs at South Abutment in Stage I
   - Relocated equipment box from temporary location to south abutment wing wall.

2. Proposed activities for next quarter by task

   - Continue FE modeling and verifying reading from various sensors.
   - Improve design alternatives based on new data.
   - Install UIC Fiber Optic and Rutgers' sensors in SA Approach slabs
   - Perform Load testing of new slabs.
   - Calibrate WIM Bending plate system in Approach slabs in Stage II SA location

3. List of deliverables provided in this quarter by task (product date)
   N/A
4. Progress on Implementation and Training Activities
   N/A
5. Problems/Proposed Solutions
   N/A

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6. Budget Summary*

Total Project Budget (# of years)	1 Year	NA add-on
Total Project Expenditure to date		NA add-on
% of Total Project Budget Expended		NA add-on
Task Order Number/Study Number:		99 / 4-26676
Current Task Order Budget (# of years)	Year 1	NA add-on
Actual Expenditure to date against current task order		NA add-on
% of current task order budget expended		NA add-on

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QUARTERLY PROGRESS REPORT

Project Title:	Development of Airport Obstruction Identification System
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Ed Kondrath
TASK ORDER NUMBER/Study Number: 115 / 4-26857	PRINCIPAL INVESTIGATOR: Patrick Szary
Study Start Date: 01/1/2002 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1. Literature Search	10%	0%	100%	10%
2. Develop criteria	5%	0%	100%	5%
3. Evaluate the cost effectiveness	8%	5%	100%	8%
4. Conduct laboratory experiments	5%	10%	80%	4%
5. Conduct laboratory/field experiments	15%	5%	80%	12%
6. Develop prototype software	25%	10%	70%	17.5%
7. Demonstrate field test system	5%	20%	20%	1%
8. Redesign a new prototype	5%	10%	60%	3%
9. Demonstrate prototype system	5%	0%	0%	0%
10. Train NJDOT personnel	7%	30%	36%	2.5%
11. Final Report	10%	10%	0%	1%
TOTAL	100%			64%

1. Progress this quarter by task:

A. Two training helicopters were purchased from GS Hobbies and were delivered early this quarter. Along with the helicopters the Olympus E-20 5.0 mega pixel digital camera was purchased. The camera will be tested by taking pictures of trees from a nearby building and then will be sent to the partner I Michigan to sample the post processing portion of the project.

B. The most significant progress this task was the beginning of the training phase for the DOT personnel. To date, four training sessions have been held on the campus of Rutgers University with two training personnel. The training consists of both hands on, in the field flying of the training helicopters along with some classroom and simulator time during each session.

C. The final helicopter from Bergen RC is nearing completion. It is expected that delivery will take place early next quarter.

2. Proposed activities for next quarter by task

A. Continuing helicopter training sessions until all trainees become proficient in flying the helicopters.

B. Delivery of the Bergen RC helicopter system.

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3. List of deliverables provided in this quarter by task (product date)
   A. List of requirements for a custom made RC helicopter.

4. Progress on Implementation and Training Activities
   A. Training activities have begun and are progressing nicely. Trainees have all been able to get flight time with both the simulator and actual helicopters.

5. Problems/Proposed Solutions
   A. Ability of the NJDOT personnel to learn to fly an RC helicopter because it is considered a difficult task. Thus it is critical to begin training as soon as the GPS selection is made to allow enough training time prior to the development and delivery of the final system.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$210,000.00
Total Project Expenditure to date		$79,710
% of Total Project Budget Expended		38%
Task Order Number/Study Number:		115 / 4-26857
Current Task Order Budget (# of years)	Year 1 and 2	$210,000.00
Actual Expenditure to date against current task order		$79,710
% of current task order budget expended		38%

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QUARTERLY PROGRESS REPORT

Project Title:	The Development of a Performance Specification for Granular Base and Subbase Material
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 83 / 4-23914	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 03/01/2000 Study End Date: 08/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	5%	0%	100%	5%
1. Material Collection	5%	0%	100%	5%
2. Laboratory Testing	60%	10%	95%	57%
3. Calibration	10%	25%	90%	9%
4. Reporting	20%	40%	70%	14%
Final Report				
TOTAL	100%			90%

1. Progress this quarter by task:
   - A. Permanent deformation testing was completed and resilient modulus testing began. The resilient modulus testing should finish soon, along with the submission of the final report. The permanent deformation testing showed to be heavily dependent on the material gradation. The gradation which provided the greatest resistance to permanent deformation was the middle of the gradation range. This was most likely due to the particles having the greatest compaction and "tightest" fit. In general, the material gradation that obtained the largest permanent deformation was the extreme coarse side. This can again be explained by how the particles are arranged. In the high end gradation (coarsest), the aggregate particles are extremely coarse and not well compacted. Therefore, the sample's overall structure is not as sound as the middle range.
   - B. All of the CBR testing was completed. The CBR testing was also conducted on the RAP and RCA mix, at varying percentages. In general, with any of the materials tested, as the percent of RAP increased, the CBR value decreased. The opposite occurred with the RCA. As the percent of RCA increased, so did the CBR value. However, the RCA also had the lowest permeability values.

2. Proposed activities for next quarter by task:
   - A. Resilient modulus testing should be completed very soon and the final report will be generated.

3. List of deliverables provided in this quarter by task (product date)
   N.A.

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4. Progress on Implementation and Training Activities

N.A.

5. Problems/Proposed Solutions

N.A.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$286,041.00
Total Project Expenditure to date		$283,443
% of Total Project Budget Expended		99%
Task Order Number/Study Number:		83 / 4-23914
Current Task Order Budget (# of years)	Year 1 and 2	$286,041.00
Actual Expenditure to date against current task order		$283,443
% of current task order budget expended		99%

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QUARTERLY PROGRESS REPORT

Project Title:	A Proposal for the Development of High Performances Concrete for Transportation Structures in New Jersey
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Tony Chmiel
TASK ORDER NUMBER/Study Number: 62 / 4-23806	PRINCIPAL INVESTIGATOR: Hani Nassif
Study Start Date: 04/30/2001 Study End Date: 08/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Selection of Final Mixes	5%	0%	100%	5%
Collection of Data and Preparation of Samples During the Field Samples	20%	5%	90%	18%
Evaluation of Field Samples	10%	0%	80%	8%
Creep and Shrinkage Set-up and Testing	50%	5%	100%	50%
Preparation of Specifications for HPC	10%	10%	80%	8%
Final Report	5%	30%	90%	4.5%
TOTAL	100%			92.5%

1. Progress this quarter by task:

A. All remaining mixes were tested for creep and shrinkage and data is collected from creep rigs.
1. Compared restrained shrinkage to free shrinkage and effect of using different cylinder size.
2. The mixes for creep were tested for strength, shrinkage and rapid chloride permeability tests and the other mixes had additional tests of freeze and thaw, autogenous shrinkage and scaling.
3. A draft final report is completed with a technical brief describing the tasks and results of the project over the last three years. The report and technical brief will be submitted to NJDOT for comments and suggestions.

2. Future Tasks:

1. Modify and update revision to Final report.
2. Coordinate with NJDOT Research and Materials the preparation of a HPC workshop or technology transfer presentations on results of HPC project.
3. Update data and creep graphs continuously until the publication of the final report.

3. Proposed activities for next quarter by task

A. Discuss with NJDOT the possibility of collecting field data from current HPC projects on contract with the Department as a replacement to the task of working with Concrete producers in the State.

3. List of deliverables provided in this quarter by task (product date)

N/A

4. Progress on Implementation and Training Activities

N/A

5. Problems/Proposed Solutions

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N/A

6. Budget Summary*

Total Project Budget (# of years)	1.5 Years	$384,320.00
Total Project Expenditure to date		$383,763
% of Total Project Budget Expended		99%
Task Order Number/Study Number:		62 / 4-23806
Current Task Order Budget (# of years)	Year 1.5	$384,320.00
Actual Expenditure to date against current task order		$383,763
% of current task order budget expended		99%

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B. Several meetings have been held between FHWA, NJDOT, and Rutgers CAIT-LTAP representatives. On 7/23 Bill Beans met with the program director to discuss the results of the Literature Review. He also designated C. Knezek to chair the Crash Data subcommittee of the CSSI Project. On 7/28 a meeting took place at the National LTAP Conference between Claudia and Ben Gribbon (FHWA) on the application of Safety Conscious Planning at the local level. Next, Dr.'s Aboobaker and Knezek met to review the progress of the grant on 8/14/03, while a second meeting was held earlier that day between Claudia and Karen Yunk on the preparation of an upcoming Intersection Safety Workshop. On 8/15, Dr. Maher and Pat Ott were also briefed on the progress of the grant to date.

C. Update of Grant Project: Representatives from SJTPO met with Patty Leech (FHWA) and Claudia Knezek to review the content of the Safety Survey. The group offered to share their data with Rutgers, but a final decision was made to have Rutgers send out their own survey because some of the questions did not pertain to Safety Conscious Planning and the data was already one year old. The computer consultant is currently creating an on-line instrument that will be accessed by the respondents. Larry Cullari (FHWA) is also preparing a letter of explanation that will be distributed throughout the state during early September.

D. Literature Review: The three sections of the Literature Review are being compiled into a technical report that will be presented at two state conferences during the fall.

E. Discussion of Safety Conscious Planning Model: The Safety Conscious Planning Model is a new program, developed by FHWA that integrates transportation safety and engineering. It has recently been updated to fit the scope of the CSS Initiative, which addresses safety, security, and congestion on both the State and Local levels. Also, the MPOs are directly involved in the process. The NJDOT Crash Records department is very much interested in having their records used to determine where safety applications can be made locally and identify high volume crash locations.

F. Survey Plan: The Safety Survey has been prepared and is ready to be distributed electronically, after the survey letter has been prepared in early September.

F. Proposed activities for next quarter by task

CSS Initiative Programs	
Activity	**Projected Time Period**
Visit Comparable State	October
Visit NJDOT Personnel	September
Survey Distribution	September
Electronic Data Analysis	October
Completion of Literature Review	September
Preparation of Presentation for Showcase	September

a) Continue Literature Search
b) Report regularly on current state of practice to the executive board
c) Distribute survey
d) Meet with various stakeholders

3. List of deliverables provided in this quarter by task (product date)
Draft of Security Literature Review
CSS Initiative Survey

4. Progress on Implementation and Training Activities
Planned Intersection Safety Workshop (12/3/03)

5. Problems/Proposed Solutions

1. Problem: Gaining Support for Safety Conscious Planning Model

Solution: FHWA hosted meeting with SJTPO and received approval to continue with the Project that integrates engineering and safety into one plan.

2. Problem: The Safety Conscious Planning Model has recently been modified to include Security Into the Safety component, which is more useful for local transportation agencies that are seeking technical support in developing their own security plans.

Solution: Rutgers personnel will address both, Safety and Security in the training forums.

6. Budget Summary*

Total Project Budget (# of years)	1 and 2 Year	$ 741,836
Total Project Expenditure to date		$114,875
% of Total Project Budget Expended		15%
Task Order Number/Study Number:		132 / 4-26993
Current Task Order Budget (# of years)	Year 1 and 2	$ 741,836
Actual Expenditure to date against current task order		$114,875
% of current task order budget expended		15%

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QUARTERLY PROGRESS REPORT

Project Title:	Life Cycle Cost Analysis
RFP NUMBER: N/A	NJDOT RESEARCH PROJECT MANAGER: Richard Weed
TASK ORDER NUMBER/Study Number: 91 / 4-23942	PRINCIPAL INVESTIGATOR: Kaan Ozbay & Neville Parker
Study Start Date: 06/09/2000 Study End Date: 6/30/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
First Year				
1. Review of Existing LCCA Procedures in NJDOT and other DOTs	30%	40%	100%	30%
2. Study of the LCCA Input Parameters from both Economics and Engineering Perspectives	30%	20%	1000%	30%
3. Preliminary Documentation of the LCCA Process	20%	20%	100%	20%
4. Workshop on the LCCA Process	10%	50%	100%	10%
5. Interim Report	10%	10%	100%	10%
TOTAL (First Year)	100%			100%
Second Year				
6. Development of Preliminary LCCA Guidelines	40%	30%	100%	40%
7. Development of Illustrative Case Studies	30%	20%	100%	30%
8. Guidelines and Case Study Workshop	10%	%50	100%	10%
9. Finalization of LCCA Guidelines	10%	40%	100%	10%
10. Final Report	10%	40%	100%	10%
TOTAL (Second Year)	100%	20%	20%	100%

Note: Tasks are based on the revised proposal submitted on

1. Progress this quarter by task:

Task 8: We conducted a full day workshop where we presented the findings of our study.
Task 10: We incorporated the comments and suggestions of the reviewers into the draft final report. Final report is approved and will be submitted before the Quarterly Report Meeting. .

2. Proposed activities for next quarter by task
This project is complete.

4. Progress on Implementation and Training Activities

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5. Problems/Proposed Solutions

-

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$204,495.00
Total Project Expenditure to date		$178,975
% of Total Project Budget Expended		88%
Task Order Number/Study Number:		91 / 4-23942
Current Task Order Budget (# of years)	Year 1 and 2	$204,495.00
Actual Expenditure to date against current task order		$178,975
% of current task order budget expended		88%

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QUARTERLY PROGRESS REPORT

Project Title:	Evaluation Study of the NJ Turnpike Authority's Value Pricing Initiative
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Nancy Ciaruffoli
TASK ORDER NUMBER/Study Number: 114 / 4-26514	PRINCIPAL INVESTIGATOR: Kaan Ozbay (Rutgers) / Jose Holguin-Veras (RPI)
Study Start Date: 01/01/2002 Study End Date: 12/31/2004	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	5%	25%	100%	5%
Task 1: Collect socio-economic characteristics of the users.	10%	15%	30%	3
Task 2: Identification of toll structure changes.	2.5%	100%	100%	2.5
Task 3: Traffic data collection.	5%			
Task 4: Assess impacts on users.	5%			
Task 5: Monitor media and decision-makers' reaction to value pricing	2.5%	20%	20%	.5%
Tasks 6-7: Assemble panel of users. Collect travel behavior data.	20%	10%	10%	2%
Tasks 8-9: Behavioral modeling. Estimation of econometric parameters.	10%			
Task 10: Traffic modeling.	10%	20%	20%	2%
Task 11: Estimate congestion levels and travel time savings/losses for before and after conditions.	10%			
Task 12 : Estimate environmental impacts for before and after conditions.	5%			
Tasks 13-14: Estimate economic value of travel time savings. Differential impacts among user classes.	5%			
Final Report	10%	0%	0%	0%
TOTAL	100%			14.5%

1. Progress this quarter by task:

- Task 1: we continued to work on the possible questions for the focus groups and surveys.
- Task 2:We completed the review of previous value pricing projects and related literature.
- Task 3: We met with Jerry Kraft and Bob dale NJTurnpike on the 19th of June, 2003. Professor Ozbay and Martin Robbins and Allan Lichtensten of TPI attended the meeting. This meeting was mainly a kick off meeting where we discussed data issues.
- Task 3: We obtained preliminary data from NJTPK and started to analyze it.

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- Task 5: Martin Robbins and Allan Lichtensten of TPI started to work on the media issues.
- Task 10: We started to buil d the network around the NJTPk for the traffic modeling.

2. Proposed activities for next quarter by task

Obtain additional traffic data form NJTPk
Work on the development of surveys and focus group questions
Work on a preliminary behavioral and traffic model to assess the impacts of value pricing

3. List of deliverables provided in this quarter by task (product date)

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions

We received the final task order from NJDOT in order to start the work.

6. Budget Summary*

Total Project Budget(# of years)	1 Year	$ 559,618.00
Total Project Expenditure to date		$39,971
% of Total Project Budget Expended		7%
Task Order Number/Study Number:		114 / 4-26514
Current Task Order Budget (# of years)	Year 1	$ 559,618.00
Actual Expenditure to date against current task order		$39,971
% of current task order budget expended		7%

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QUARTERLY PROGRESS REPORT

Project Title:	Estimation of Truck Volume and Flows
RFP NUMBER: NJDOT 2001-18	NJDOT RESEARCH PROJECT MANAGER: Nicholas Vitillo
TASK ORDER NUMBER/Study Number: 116 / 4-26855	PRINCIPAL INVESTIGATOR: Maria Boilé
Study Start Date: 01/01/2002 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	6%	-	100%	6%
Task 1 Data collection	8%	-	100%	8%
Task 2 List of major truck generating facilities	8%	-	100%	8%
Task 3 Criteria or factors that influence changes in truck flow	10%	-	100%	10%
Task 4 Relationships between ADT and truck volumes	33%	20%	65%	21.45%
Task 5 Methods to estimate truck flow and truck percentages	-	-	-	-
Task 6 Validate the estimation method on a selection of 12 routes	17%	10%	25%	4.25%
Task 7 Apply methodology on a statewide basis	8%	0%	0%	0%
Task 8 Quarterly progress and final reports	10%	10%	50%	5%
TOTAL	100%			62.7%

1. Progress this quarter by task:

Task 3 *–After finalizing the data set the 12 roadway segments to be examined in this project have been selected. The criteria and factors that influence changes in truck flow, which had been decided upon during the last meeting will be applied to the revised set of roadways.*

Task 4 *– The statistical analysis has been performed again. New models have been developed to account for the functional classification of highways. Sensitivity analysis will be performed for each of these models. Profiles have been developed for each of the twelve selected roadways. These profiles include total daily, auto and truck traffic on the sections of the twelve highways. The report that had been produced on this task is being revised.*

Task 5 *– A method for estimating an O-D matrix and determining truck volumes in the highway network based on truck volume observations through classification counts has been developed and tested. The preliminary results are not promising.*

Task 6 *– A method for assessing the accuracy and validity of the results to be produced under task 4 is being devised.*

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2. Proposed activities for next quarter by task
The statistical analysis of Task 4 will continue based on the discussion with NJDOT during the August 22 meeting.

3. List of deliverables provided in this quarter by task (product date)
Technical reports on Tasks II-1 and II- 2 and progress report on Task II-4

4. Progress on Implementation and Training Activities
N/A

5. Problems/Proposed Solutions
N/A

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$ 198,508.00
Total Project Expenditure to date		$111,195
% of Total Project Budget Expended		56%
Task Order Number/Study Number:		116 / 4-26855
Current Task Order Budget (# of years)	Year 1 and 2	$ 198,508.00
Actual Expenditure to date against current task order		$111,195
% of current task order budget expended		56%

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QUARTERLY PROGRESS REPORT

Project Title:	Operational Improvements at Traffic Circles (Project 2002-16)
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Robert Sasor
TASK ORDER NUMBER/Study Number: 129 / 4-26544	PRINCIPAL INVESTIGATOR: Kaan Ozbay (Rutgers) / George List (RPI)
Study Start Date: 01/01/2002 Study End Date: 12/31/2004	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Phase 1: Preliminary Literature Search	5%	50%	100%	5%
Phase 2				
Task 1: Literature Review	10%	50%	75%	7.5%
Task 2: Selection and Use of Computer Tool.	30%	100%	100%	2.5
Task 3: Evaluation of Operational Alternatives.	30%			
Task 4: Safety Evaluation	20%			
Task 5: Cost – Benefit Analysis	10%			
Tasks 6: Final Recommendations	5%			
Tasks 7: Administration / Final Report.	10%			
TOTAL				15%

1. Progress this quarter by task:

- Phase 1: Preliminary Literature Search is complete.
- Task 1: This Task is compete except the safety issues. As part of this task, we also reviewed the following topics:
  - Available simulation models that can be used for the modeling o traffic cicrles
  - Related studies published in the open literature
  - Papers dealing wit Operation improvement applicable to traffic cicles
  - Data needs for the validation and calibration of traffic simulation model to be used to model the selected circles
- Task 2: Base on our review of the literature and available simulation models, we recommended Paramics as the simulation tool. On July 24th 2003, project Team at Rutgers had a meeting with Mike Asson and Bob Sasor of NJDOT where this recommendation was discusses after a demonstration of the capabilities of the recommended simulation tool. Paramics was approved as the simulation tool to be used in this study.
- We completed the preliminary modeling of the three circles namely, Brooklawn, Collingswood and Asbury Circles
- .We conducted site visits to all three circles to determine the best set-up for data collection using POGO tool.

2. Proposed activities for next quarter by task

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- Data collection
- Data processing and analysis
- Calibration of simulation models
- Completion of the literature review
- Completion of an interim report for the first two tasks.

3. List of deliverables provided in this quarter by task (product date)
   - Technical memorandum on the computer software package that will accurately model traffic circles and effectively simulate traffic movements with animated graphics.

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions

We received the final task order from NJDOT in order to start the work.

6. Budget Summary*

Total Project Budget(# of years)	1 Year	$ 141,040.00
Total Project Expenditure to date		$20,000
% of Total Project Budget Expended		14%
Task Order Number/Study Number:		129 / 4-26544
Current Task Order Budget (# of years)	Year 1	$ 141,040.00
Actual Expenditure to date against current task order		$20,000
% of current task order budget expended		14%

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QUARTERLY PROGRESS REPORT

Project Title:	Seismic Analysis of Retaining Walls, Buried Structures, Embankments, and Integral Abutments
RFP NUMBER: 2000-25	NJDOT RESEARCH PROJECT MANAGER: Mr. Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 127 / 4-26995	PRINCIPAL INVESTIGATOR: Dr. Husam Najm
Study Start Date: 01/01/2003 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Review on Seismic Design of Abutments, Retaining Structures, Buried Structures, and Embankments	10	20	50	5
Provide Analysis, Design, and Detailing of Free Standing Abut and Retaining Walls	20	25	22	6
Provide Analysis, Design, and Detailing of Integral (Diaphragm) Abutments	20	25	22	6
Provide Guide Specifications Manual to Assist Designers in Designing Free-Standing and Integral Abutments, Embankments, Buried Structures and Retaining Walls	30	30	0	0
Prepare Progress reports	10	20	4	4
Prepare Technical Memorandum and Final Report	10	25	0	3
TOTAL	100%	25	44	44

1. Progress this quarter by task:
   Continue to run analysis on bridges for several cases comparing proposed and current LRFD criteria. This includes bridges in North, Central, and South Jersey with various accelerations. We also looked at using accelerations with less return period and compare them with the 2500 years return period. The impact of soil was also evaluated by comparing EQ in various soil profiles (B, D, and E) plus the impact on detailing requirements on typical bridges in those zones and how the design compares with that of the existing specs. A look also response of retaining walls to earthquake was evaluated. Buried structures were also evaluated based on existing information and data are compiled and will be presented.

2. Proposed activities for next quarter by task:
   Prepare design criteria and guidelines. Prepare a detailed design example for abutments and retaining walls. Evaluate the new proposed revisions to NCHRP 12-49 that recently presented at the AAASHTO meeting in Albuquerque, NM. Update draft of final report based on comments form NJDOT customer and research manager.

3. List of deliverables provided in this quarter by task (product date):
   An interim draft report of completed work from start of work up to end of this quarter.

4. Progress on Implementation and Training Activities: None

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5. Problems/Proposed Solutions:
None

6. Budget Summary*

Total Project Budget (# of years)	1 Year	$173,017
Total Project Expenditure to date		$69,077
% of Total Project Budget Expended		40%
Task Order Number/Study Number:		127 / 4-26995
Current Task Order Budget (# of years)	Year 1	$173,017
Actual Expenditure to date against current task order		$69,077
% of current task order budget expended		40%

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QUARTERLY PROGRESS REPORT

Project Title:	Material Characterization and Seasonal Variation in Material Properties
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Tony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 100 / 4-26701	PRINCIPAL INVESTIGATOR: Dr. Nenad Gucunski
Study Start Date: 01/01/2001 Study End Date: 12/31/2004	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Selection of Test Sections	5	0	100	5
Field Testing & Instrumentation	50	15	80	32.5
Analysis	35	10	45	15.8
Reporting	10	10	40	4
TOTAL	100%			57.3

1. Progress this quarter by task:

The FWD Testing and Climatic data collection at the instrumented LTPP and non-LTPP sites and corresponding office processing continued during the reporting period.

- The FWD and SPA testing proceeded as scheduled, except the July FWD testing on I195E, July SPA testing on I195W and all of August SPA testing. The SPA testing was not conducted due to multiple failures and repairs of the high frequency hammer load cell and one of the geophones.

2. Climatic Data was collected for all the LTPP and Non-LTPP sites in April. Data from the non-LTPP Sites 1, 3 and 5 have been collected till August 15, 2003.
3. Office Processing of the June and July 2003 climatic data in terms of QC/QA have been completed and is in progress for the August 2003 reporting period.
4. Processing of FWD data for the reporting period is in progress.
5. A correlation analysis is being carried out to determine the effects, if any, of daily temperature changes on pavement response parameters. FWD, SPA and climatic data from the 24 hour testing carried out on the rigid pavement from Non-LTPP Site 6 is being used for the purpose.
6. New MRC probes in the pavement surface at Non-LTPP Sites 3 and 7 have been received and the old ones replaced.
7. Two malfunctioning Campbell Scientific CR-10 data loggers were replaced with two new CR-10X data loggers.
8. Laboratory evaluation of all recovered materials completed and the report prepared.

2. Proposed activities for next quarter by task:
   - Continue the regular FWD/SPA testing for the non-LTPP sites.
   - Continue the regular FWD/SPA testing on the LTPP sites.
   - Continue analysis on the FWD and SPA data.

3. List of deliverables provided in this quarter by task (product date)

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Report on laboratory evaluation of soil base materials and AC cores.

4. Progress on Implementation and Training Activities

N/A

5. Problems/Proposed Solutions

N/A

6. Budget Summary*

Total Project Budget(# of years)	3 Years	$1,695,894.00
Total Project Expenditure to date		$1,202,214
% of Total Project Budget Expended		71%
Task Order Number/Study Number:		100 / 4-26701
Current Task Order Budget (# of years)	Year 1, 2, and 3	$1,695,894.00
Actual Expenditure to date against current task order		$1,202,214
% of current task order budget expended		71%

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QUARTERLY PROGRESS REPORT

Project Title:	Rut Testing of Hot Mix Asphalt
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Nicholas Vitillo
TASK ORDER NUMBER/Study Number: Task Order No. 98 / 4-26677	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 01/01/2001 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search/Local Agency Survey	10%	0%	100%	10%
Lab Testing for Rutting Criteria	25%	0%	100%	25%
Lab Testing for NJ HMA Characterization	25%	10%	90%	22.5%
Lab Testing for SUPERPAVE vs Marshall	20%	15%	85%	17%
Field Calibration/Evaluation	10%	10%	45%	4.5%
Final Report	10%	10%	55%	5.5%
TOTAL	100%			84.5%

1. Progress this quarter by task:
   A. The part one of the project, "A Rutting Criteria for the Asphalt Pavement Analyzer", was finished and a final report was generated. The requested corrections by the NJDOT were conducted and the final report will be delivered at the quarterly meeting.
   B. The Low Volume road section of the project finished the fourth asphalt design. This design was from A.E. Stone in south Jersey. The Marshall results indicated an optimum asphalt content of 5.5% and the Superpave design showed 5.8%. Samples are being made for APA and permeability testing.
   C. The flexural beam fatigue device was delivered. The equipment will be set-up and the representative from IPC will provide training. Once training is completed, samples from the low volume designs will be compacted into beams, cut, and tested for fatigue.

2. Proposed activities for next quarter by task:
   A. The fifth low volume road mix design is being conducted. It is anticipated the Superpave portion should be finished by the date of the quarterly meeting.
   B. Flexural beam fatigue testing should begin on some of the low volume mixes. It is anticipated that once this equipment is running properly, members of the NJDOT will be invited for a demonstration of the test.

3. List of deliverables provided in this quarter by task (product date):
   N/A

4. Progress on Implementation and Training Activities:
   N/A

5. Problems/Proposed Solutions:
   N/A

Department of Civil and Environmental Engineering
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Tel: 732-445-0579 Fax: 732-445-0577

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$391,867.00
Total Project Expenditure to date		$328,982
% of Total Project Budget Expended		84%
Task Order Number/Study Number:		98 / 4-26677
Current Task Order Budget (# of years)	Year 1 and 2	$391,867.00
Actual Expenditure to date against current task order		$328,982
% of current task order budget expended		84%

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QUARTERLY PROGRESS REPORT

Project Title:	Ride Quality Follow-Up
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Mr. Nick Vitillo
TASK ORDER NUMBER/Study Number: Task Order No. 126 / 4-26526	PRINCIPAL INVESTIGATOR: Dr. Nenad Gucunski
Study Start Date: 01/01/2003 Study End Date: 12/31/2004	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search and Planning	5	30	100	5
Design and Development	70	20	20	14
Implementation and Training	10	0	0	0
Reporting	10	0	0	0
TOTAL	100%			19

1. Progress this quarter by task:

- Review of pertinent literature completed.
- Search and examination of software relevant to ride quality parameters evaluation in progress.
- Project planning in progress. An extensive meeting of NJDOT Research Bureau, Rutgers and Stantec representatives took place end of August to discuss the progress and research plan.
- Subcontract to Stantec issued.

2. Proposed activities for next quarter by task:

- Field data collection for selection of the SPP
- Development of a more representative ride statistic, including a new approach utilizing wavelet transforms.
- Software review and evaluation, software development

3. List of deliverables provided in this quarter by task (product date)

4. Progress on Implementation and Training Activities

N/A

5. Problems/Proposed Solutions

N/A

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6. Budget Summary*

Total Project Budget(# of years)	2 Years	$232,005.00
Total Project Expenditure to date		$11,631
% of Total Project Budget Expended		5%
Task Order Number/Study Number:		126 / 4-26526
Current Task Order Budget (# of years)	Year 1, 2, and 3	$232,005.00
Actual Expenditure to date against current task order		$11,631
% of current task order budget expended		5%

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QUARTERLY PROGRESS REPORT

Project Title:	Demonstration Project – The Measurement of Pavement Noise Using the NCAT Noise Trailer
RFP NUMBER:	NJDOT PRINCIPAL Anthony Chmiel
TASK ORDER NUMBER/Study Number: Task Order No. 140 / 4-2XXXX	PRINCIPAL INVESTIGATOR: Thomas Bennert
Study Start Date: 07/1/2003 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1. Pavement Type Selection	10%	100%	100%	10%
2. Pavement Noise Testing	70%	100%	100%	70%
3. Data Analysis and Reporting	20%	0%	0%	0%
Final Report				
TOTAL	100%			80%

1. Progress this quarter by task:
   - A. The pavement noise study began by evaluating what pavement surfaces in New Jersey to be selected for testing. Eventually, 6 Portland Cement Concrete (PCC) and 14 hot mix asphalt (HMA) were selected for evaluation. The PCC surfaces comprised of both old and new, tined, and diamond ground. The HMA surfaces comprised of open-graded friction course, novachip, SMA, and 12.5mm and 19mm Superpave mixes. Some of the open-graded mixes also contained crumb rubber.
   - B. The testing finished within two weeks. The testing was conducted to evaluate both the variability of the test measurements (by conducting repeat runs on the same surface at the same area) and also looked at evaluating the effect of traffic speed (the trailer was driven at 60, 65, and 70 mph). The traffic speeds were selected to encompass the typical traffic speeds found on the particular roadways tested. If the speed limit on the roads were only 55 mph, the trailer speed was adjusted to again encompass the speed limit.

2. Proposed activities for next quarter by task:
   - A. The analysis of the sound data is currently taken place at the National Center for Asphalt Technology (NCAT) at Auburn University. After speaking with Doug Hansen, who is the lead engineer at NCAT working with the noise trailer, it is anticipated that the analysis should be finished by the beginning of December, with the final report following shortly after. Doug Hansen has also agreed to come to New Jersey to provide a presentation on the findings from the study.

3. List of deliverables provided in this quarter by task (product date)
   N.A.

4. Progress on Implementation and Training Activities
   N.A.

5. Problems/Proposed Solutions

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N.A.

6. Budget Summary*

Total Project Budget(# of years)	6 Months	$15,000
Total Project Expenditure to date		$0
% of Total Project Budget Expended		0%
Task Order Number/Study Number:		
Current Task Order Budget (# of years)	Year 1	$15,000
Actual Expenditure to date against current task order		$0
% of current task order budget expended		0%

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QUARTERLY PROGRESS REPORT

Project Title:	New Jersey State LTAP Technology Transfer Center
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Nicholas Vitillo
TASK ORDER NUMBER/Study Number:	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 01/01/2003 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Activity				
1. Compile and Maintain Mail List	1.88		97.63	1.84
2. Publish Monthly Newsletter	10.30		96.00	9.88
3. Distribute Technology Transfer Materials	15.45		75.87	11.73
4. Provide Technical Assistance	34.25		66.11	22.64
5. Provide Training	33.31		67.20	22.38
6. Evaluate Effectiveness of Program	4.81		100	4.81
Final Report				
TOTAL				73.88

1. Progress this quarter by task:

A. Compile and Maintain Mail List

The mail list has been updated to include approximately 8,000 contacts in municipal, county, state and federal government, as well as other transportation entities. The email distribution list was changed from an Outlook based email system to an online server system, which is much more efficient. The server system has made it possible to log and remove all faulty addresses from the distribution list.

B. Publish Monthly Newsletter

Three newsletters were published this quarter. Newsletter distribution occurred via email. The newsletter is available in three forms: within the email, attached to the email in PDF format, and posted online at the LTAP web page. All subsequent issues are archived under the "Library" section of the LTAP the web page.

Volume 5, Number 7 was published in July 2003. This issue featured the Dennis R. Sullivan Scholarship, an article about the Bayshore Recycling-Rutgers University Research Partnership, and updated events and course offerings. The monthly "*Free for the Asking*" offering was "*Regional Traffic Incident Management Programs Implementation Guide*" published by the United States Department of Transportation and the Federal Highway Administration.

Volume 5, Number 8 was published in August 2003. The eighth newsletter of this year included an article on the nationwide impaired driver crackdown, US Department of Homeland Security, the NJ Chapter APWA video contest, and a new FHWA Resource Center. Also, events and course schedules, as well as a "*Free for the Asking*" offering were included.

Volume 5, Number 9, was published in September 2003. This issue featured information on the Public Works Academy for the Fall of 2003, the FHWA 8th Annual Winter Symposium and Equipment Exhibition, a Call for Papers, and a *Free for the Asking"* offering entitled "*Work Zone Safety for Roadway Operations*". In addition, an updated training calendar was included.

C. Distribute Technology Transfer Materials

Technology transfer materials were distributed during training seminars, workshops, and free for the asking requests. Course materials, work zone safety pocket guides, technical publications, and reference materials from the lending library were made available. 3,500 individuals received each issue of the newsletter. In addition, 372 technical publications and manuals were distributed this quarter. Aside from training materials, these included pavement markings identification guides, work zone safety interactive CD-ROMS, and technical reports.

D. Provide Technical Assistance

There were 478 instances of technical assistance provided by LTAP staff. Requests were made via telephone, mail, e-mail, and fax.

E. Provide Training

Training was provided to 116 individuals via 9 programs during the July- September quarter. Program areas were composed of Public Works Academy, Road Scholar I, Road Scholar II, and Traffic Control Coordinator.

F. Evaluate Effectiveness of Program

Program effectiveness was measured by course evaluations for each course and each instructor. Participants rated the over all quality of courses, instructors, and course content at or above their expectations. The quarterly meeting (August 2003) of the Local Technical Assistance Program Advisory Committee also served as an analysis of program activities.

2. Proposed activities for next quarter by task

A. Compile and Maintain Mail List

Contact information will continue to be added to, and revised, on a continual basis.

B. Publish Monthly Newsletter

Newsletters will be published monthly. The newsletter will be continually offered online in both html and PDF formats, and in a simple email format.

C. Distribute Technology Transfer Materials

Technology transfer materials will be distributed during training programs, conferences and trade shows. The "Free for the Asking" component of the newsletter will continue to offer select technical publications free of charge. The lending library is always available.

D. Provide Technical Assistance

Technical assistance will be provided for any inquiries made via telephone, fax, or e-mail to the LTAP staff.

E. Provide Training

Training programs for the next quarter will be provided for the Public Works Road Scholar I and Public Works Road Scholar II Programs, the Public Works Academy, the 3rd Annual Local Technical Assistance Program Research Showcase and a 3-Day Public Works: Preparing for and Responding to Terrorism/Weapons of Mass Destruction Seminar is scheduled for October.

F. Evaluate Effectiveness of Program

Course evaluations will be completed at each training program for each instructor. Follow-up course surveys for participants are under development. The quarterly meeting of the Advisory Committee will also reflect evaluation of program activities.

3. List of deliverables provided in this quarter by task: (product date)

Newsletter:

Volume 5, Number 7	July 2003
Volume 5, Number 8	August 2003
Volume 5, Number 9	September 2003

Training Programs:

Traffic Control Coordinator Program	July 8-11, 2003
Train the Trainer, Public Works Academy	July 16, 2003
Functions of Public Works, Public Works Academy	September 16, 2003
Excavation and Trenching Safety, Road Scholar I	September 17, 2003
Confined Space and Excavation Rescue, Road Scholar I	September 17, 2003
Worker Safety, Public Works Academy	September 23, 2003
Shared Services and Privatization, Road Scholar II	September 24, 2003
Managing Public Equipment, Road Scholar II	September 24, 2003
Basic Equipment Safety, Public Works Academy	September 30, 2003

4. Progress on Implementation and Training Activities

N.A.

5. Problems/Proposed Solutions

N.A

6. Budget Summary*

Total Project Budget(# of years)	$275,000
Total Project Expenditure to date	$201,789
% of Total Project Budget Expended	73%
Task Order Number/Study Number:	
Current Task Order Budget (# of years)	$275,000
Actual Expenditure to date against current task order	$201,789
% of current task order budget expended	73%

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QUARTERLY PROGRESS REPORT

Project Title:	Implementation of Weigh-In-Motion (WIM) Systems
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Nick Vitillo
TASK ORDER NUMBER/Study Number: 92 / 4-23941	PRINCIPAL INVESTIGATOR: Dr. Ali Maher
Study Start Date: 06/14/2000 Study End Date: 12/31/2003	Period Covered: 3rd Quarter 2003

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	10%	0%	100%	10%
1. Packaging	17%	5%	100%	17%
2. Testing	14%	5%	95%	13.3%
3. Site Determination	11%	20%	90%	9.9%
4. Field Implementation & Calibration	16%	5%	60%	9.6%
5. Monitoring and Analysis	22%	0%	0%	0%
Final Report	10%	0%	0%	0%
TOTAL	100%			59.8%

1. Progress this quarter by task:

A. The site selection was completed. A complete layout of the sensors, wires, weather tight box, conduits, placement, etc was determined.

B. Chairs for sensor placement were fabricated from the PU-200 roadway epoxy. This resolved the long standing issue of how the placement of the sensor in the field was to be "controlled".

C. Home Depot rents field wet saws equipped with a blade sufficient to cut the pavement. This resolved the long standing issue of where we were going to acquire a field wet saw.

D. A weather tight box was obtained to store the DAQ blocks in the field on the shoulder of the road (approx. 15 feet from the edge of the pavement). The box will be buried just below the grade and when fieldwork is conducted will be opened, thus allowing the DAQ system to quickly hook-up to the sensors.

E. Plastic conduit was selected to snake the wires thru from the edge of the pavement to the weather tight box. The conduit is non conductive and protects the wires in the transition from the epoxy thru the soil to the DAQ blocks.

F. Extra lengths of wires were soldered to the main sensor wires to increase the wire length. All connections were "clean" and then wrapped with electrical tape; and then jointly sealed within heat shrink tubing. All connections were tested for short circuits.

G. We coordinated with the State Police and also have opened discussions about comparing our data to the Truth Data that the State Police Collects.

H. The installation was started, and is now half complete. It is expected that if the weather is good, that the installation could be completed the first week of September.

2. Proposed activities for next quarter by task
   A. Complete installation and collect data
   B. Calibrate data with the weigh station.

3. List of deliverables provided in this quarter by task (product date)
   N/A

4. Progress on Implementation and Training Activities
   N/A

5. Problems/Proposed Solutions
   A. We needed to move our installation more into the weigh station to allow a better alignment. The new configuration allows the truck to straighten out prior to passing over the WIM.
   B. The DAQ system has started to show signs of failure, we have contact the manufacturer about our concerns. We may need to take the system to a repair shop or possibly switch to another DAQ system.

6. Budget Summary*

Total Project Budget(# of years)	2 Years	$194,500.00
Total Project Expenditure to date		$102,295
% of Total Project Budget Expended		53%
Task Order Number/Study Number:		92 / 4-23941
Current Task Order Budget (# of years)	Year 1 and 2	$194,500.00
Actual Expenditure to date against current task order		$102,295
% of current task order budget expended		53%

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